

REMARKS

Claims 11 and 13 have been objected to. Applicants have corrected "comprises" to comprise as suggested by the Examiner. Withdrawal of the objection is respectfully requested.

Claims 1-16 have been rejected under 35 U.S.C. § 112 as being indefinite. First of all, only claims 1-5, 11, 13-16 are pending in this case. Based upon the rejection, Applicants are unsure which claims are actually being rejected. Nonetheless, Applicants respectfully disagree. The language of the claims clearly conveys to one of ordinary skill in the art the placement of the stators, rotors, pressure plate and end plate. Figures 2, 7 and 8 similarly reinforce this understanding. Therefore, Applicants respectfully request withdrawal of this rejection.

Claims 1-5, 11, and 13-16 have been rejected under 35 USC §103(a) as being unpatentable over Canadian Patent CA-2004091 in view of Bok '895 et al. Applicants respectfully disagree. First, it is not evident that CA-2004091 actually shows disks (including the end plate and pressure plate) of three thicknesses due to three wear portions, where the second thickness disks are two thirds of the thickness of the first disks and the third thickness disks are one third of the thickness of the first disks. As is evident from the description of the stators on pp. 4-5 of the translation, CA-2004091 does not show explicitly or implicitly, any disk with a three wear portion on a single wear face. Furthermore, CA-2004091 does not provide replacing the fully worn disks with a disk of a first, second or third thickness as claimed by Applicants. Rather, CA-2004091 requires that the worn disk is replaced by new disks having an initial thickness identical to that of the initial disks in the corresponding positions so that the initial arrangement is reproduced. In addition, there is no description of having a brake assembly where there are three thicknesses of rotors in the assembly itself. Consequently, CA-2004091 fails to disclose Applicants' invention.

The addition of Bok does not remedy the deficiencies of CA-2004091. Bok does not teach the use of an end plate and pressure plate having three different thicknesses. As described in greater detail in Bok, the disks used as end plate and pressure plate can only be used as such and not in the stack between the end plate and pressure plate. Therefore, after a service run, if the end plate and the pressure plate are fully worn, they must be replaced with

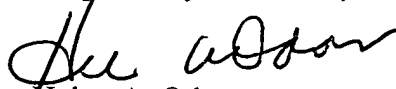
another end plate or pressure plate; they cannot be replaced with a disk from the brake stack. Consequently, the combination of CA-2004091 with Bok would not render obvious applicants claimed invention where the pressure plate, end plate, stators and rotors are of three thicknesses.

Furthermore, Examiner's arguments on page 4 of the Office Action are pure hindsight. There is no support in CA-2004091 to arrive at the conclusion deduced by the Examiner. There is no support to arrive at the conclusion that it would have been obvious to one of ordinary skill in the art to have modified the disk stack of CA-2004091 as taught by the disks of a first thickness of CA-2004091. A reference itself cannot be used as a base reference as well as the modifying reference in an obviousness rejection. It is not a matter of simple experimentation to make disks with more than one available wear portion or to have the end plate and pressure plate be made of disks. Notably, the brake assembly and overhaul concept of CA-200491 can only be applied to a brake whose design permits the same disk to be used in the position and function of a pressure plate, a center and an end plate. In most aircraft brake designs, none of the pressure plate and end plate are able to be positioned or used in other than a single location in the brake disk stack; rather the pressure plate and end plate are specially configured to fit their respective complementary parts due to very different functions in the brake stack. The design of CA-200491 utilizes a torque tube that is very different in design at its reaction end (end plate end) compared to that of most conventional brakes and that shown in the present application. In most conventional aircraft brakes, the reaction end of the torque tube is flared outwardly relative to the main "barrel" shaped portion of the torque tube, and in most designs is integrally formed by machining a single forging due to withstand the severe stresses encountered during operation at minimal weight. CA-200491, however, teaches successively using a single disk as a pressure plate, "center" stator, and end plate, and how half of the other disks in the brake stack can be used two times, because each of them are initially provisioned on each wear face with material sufficient for two service runs in contact with the rub face of another disk. It does not teach or suggest that the disks or any of them be initially provisioned with material sufficient for three service runs as in the present invention. In addition, one of ordinary skill in the art

would not have been motivated to do so. Once again, the Examiner is using pure hindsight and speculation to arrive at her conclusions. Such action is improper.

Therefore, Applicants submit that all pending claims are allowable in their present form, and hereby request allowance in a timely manner. Attached to this Amendment is an Appendix showing the claims with markings. If the Examiner has any questions or suggestions that would facilitate the disposition of this matter, she is respectfully requested to contact the Helen Odar at 312-321-4785.

Respectfully submitted,



Helen A. Odar

Registration No. 32,806 for
Attorney for Applicants

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610
(312)321-4200

APPENDIX TO SHOW CHANGES TO CLAIMS WITH MARKINGS

1. (Amended) A brake disk assembly comprising an end plate, a pressure plate and initially brake disks axially aligned and disposed therebetween, wherein said brake disks, end plate and pressure plate, [comprise] each comprising of disks with wear faces having [of] three different wear portions, whereby disks of a first thickness have an initial wear portion on each wear face, disks of a second thickness have two thirds of said initial wear portion on each wear face of said first thickness disks, and disks of a third thickness have one third of the initial wear portion on each wear face of said first thickness disks, said brake disk assembly including disks [of] having a first, second and third thickness, whereby at an overhaul the available wear portion [of each] on each wear face of said first thickness disks is approximately equal to the initial available wear portion [of each] on each wear face of said second thickness disks, and the available wear portion on each wear face of said second thickness disks is about equal to the initial available wear portion [of each] on each wear face of said third thickness disks and said available wear portion on each wear face of said third thickness disks is substantially fully worn, whereby said third thickness disks are removed and replaced with disks of a first, second or third thickness.

11. (Amended) A brake disk assembly comprising an end plate, a pressure plate, [and] three rotors, and two stators interleaved between said rotors, and disposed between said end plate and pressure plate, wherein said pressure plate, end plate, rotors and stators comprise[s] brake disks having wear faces, said brake disks comprising first thickness brake disks each having an initial first available wear portion on each wear face, second thickness brake disks each having an initial available wear portion on each wear face which is two thirds of the available wear portion [of each] on each wear face of the first thickness disks, and third thickness brake disks each having an initial available wear portion on each wear face which is one third of the available wear portion [of each] on each wear face of said first thickness disks, said brake disk assembly initially including disks of a first, second and third

thickness, whereby at an overhaul the available wear portion on each wear face of each first thickness disk is about equal to the initial available wear portion on each wear face of second thickness disks, and the available wear portion on each wear face of disk of said second thickness brake disks is about equal to the initial available wear portion on each wear face of said third thickness disks and said available wear portion on each wear face of third thickness disk is substantially fully worn and said third thickness disks are replaced by disks of a first, second or third thickness.

13. (Amended) A brake disk assembly comprising an end plate, a pressure plate, [and] four rotors, and three stators interleaved between said rotors and disposed between said end plate and pressure plate, wherein said pressure plate, end plate, rotors and stators comprise[s] brake disks having wear faces, said brake disks comprising first thickness brake disks each having an initial first available wear portion on each wear face, second thickness brake disks each having an initial available wear portion on each wear face which is two thirds of the available wear portion on the wear face of the first thickness brake disks, and third thickness brake disks each having an initial available wear portion on each wear face which is one third of the available wear portion on each wear face of disk of said first thickness brake disks, said brake disk assembly initially including disks of a first, second and third thickness, whereby at an overhaul the available wear portion [of each disk] on each wear face of each first thickness brake disks is about equal to the initial available wear portion on each wear face of disk of said second thickness brake disks, and the available wear portion on each wear face of a second thickness brake disk is about equal to the initial available wear portion on each wear face [of each disks] of said third thickness brake disks and said available wear portion [of each] on each wear face of said third thickness disks is substantially fully worn, whereby said third thickness disks are removed and replaced with disks of a first, second or third thickness.

16. (Amended) A brake disk assembly comprising an end plate, a pressure plate, [and] five rotors, and four stators interleaved between said rotors and disposed between said end plate and pressure plate, wherein said rotors and stators comprise brake disks having wear faces, said brake disks comprising first thickness brake disks each having an initial first

available wear portion on each wear face, second thickness brake disks each having an initial available wear portion on each wear face which is two thirds of the available wear portion on each wear face of the first thickness brake disks, and third thickness brake disks each having an initial available wear portion on each wear face which is one third of the available wear portion [of] on each wear face of said first thickness brake disks, said brake disk assembly initially including disks of a first, second and third thickness whereby after an overhaul the available wear portion on each wear face of said first thickness brake disks is about equal to the initial available wear portion on each wear face of said second thickness brake disks, and the available wear portion on each wear face of each disk of said second thickness brake disks is about equal to the initial available wear portion on each wear face [of each disk] of said third thickness disks and said available wear portion on each wear face [of each disk] of said third thickness disks is substantially fully worn, and said third thickness disks are removed and replaced with disks of a first, second or third thickness.